

We claim:

1. A combustion engine assembly, comprising:

a combustion engine having a displacement and emitting exhaust gases; and

a catalytic converter disposed downstream of said combustion engine for cleaning the exhaust gases;

said catalytic converter having at least one honeycomb body with a total volume smaller than said displacement by at least a factor of 0.6; and

said catalytic converter having a geometric surface dimensioned to provide said catalytic converter with an effectiveness of more than 98% for converting at least one harmful component in the exhaust gases into harmless components.

2. The combustion engine assembly according to claim 1, wherein said at least one honeycomb body has a cross-section and a number of channels through which exhaust gas can flow, said number of channels being at least 500 cpsi (cells per square inch) over said cross-section.

3. The combustion engine assembly according to claim 2, wherein said at least one honeycomb body is a metallic honeycomb body having at least one of layered and wound sheet metal layers being at least partly structured.

4. The combustion engine assembly according to claim 3, wherein said channels are separated from one another by channel walls having an average thickness of at most 40 micrometers.

5. The combustion engine assembly according to claim 3, wherein said channels are separated from one another by channel walls having an average thickness of at most 35 micrometers.

6. The combustion engine assembly according to claim 3, wherein said channels are separated from one another by channel walls having an average thickness of between 18 and 32 micrometers.

7. The combustion engine assembly according to claim 3, wherein said number of channels over said cross-section of said at least one honeycomb body is at least 600 cpsi, and said channels are separated from one another by channel walls having an average thickness of at most 32 micrometers.

8. The combustion engine assembly according to claim 3, wherein said catalytic converter is a three-way catalytic

converter converting at least 98% of hydrocarbons and nitrous oxides in the exhaust gases during normal operation.

9. The combustion engine assembly according to claim 3, wherein said catalytic converter is a three-way catalytic converter converting 99% of hydrocarbons and nitrous oxides in the exhaust gases during normal operation.

10. The combustion engine assembly according to claim 3, wherein said number of channels of said at least one honeycomb body is more than 750 cpsi, and said volume is 0.5 times said displacement.

11. The combustion engine assembly according to claim 3, wherein said channels are separated from one another by channel walls having an average thickness of less than 32 micrometers.

12. The combustion engine assembly according to claim 3, wherein said channels are separated from one another by channel walls having an average thickness of approximately 25 micrometers.

13. The combustion engine assembly according to claim 2, wherein said channels are separated from one another by

channel walls having an average thickness of at most 40 micrometers.

14. The combustion engine assembly according to claim 2, wherein said channels are separated from one another by channel walls having an average thickness of at most 35 micrometers.

15. The combustion engine assembly according to claim 2, wherein said channels are separated from one another by channel walls having an average thickness of between 18 and 32 micrometers.

16. The combustion engine assembly according to claim 2, wherein said number of channels over said cross-section of said at least one honeycomb body is at least 600 cpsi, and said channels are separated from one another by channel walls having an average thickness of at most 32 micrometers.

17. The combustion engine assembly according to claim 2, wherein said catalytic converter is a three-way catalytic converter converting at least 98% of hydrocarbons and nitrous oxides in the exhaust gases during normal operation.

18. The combustion engine assembly according to claim 2, wherein said catalytic converter is a three-way catalytic

converter converting 99% of hydrocarbons and nitrous oxides in the exhaust gases during normal operation.

19. The combustion engine assembly according to claim 2, wherein said number of channels of said at least one honeycomb body is more than 750 cpsi, and said volume is less than 0.5 times said displacement.

20. The combustion engine assembly according to claim 2, wherein said channels are separated from one another by channel walls having an average thickness of less than 32 micrometers.

21. The combustion engine assembly according to claim 2, wherein said channels are separated from one another by channel walls having an average thickness of approximately 25 micrometers.

22. The combustion engine assembly according to claim 1, wherein said at least one honeycomb body is a metallic honeycomb body having at least one of layered and wound sheet metal layers being at least partly structured.

23. The combustion engine assembly according to claim 22, wherein said channels are separated from one another by

channel walls having an average thickness of at most 40 micrometers.

24. The combustion engine assembly according to claim 22, wherein said channels are separated from one another by channel walls having an average thickness of at most 35 micrometers.

25. The combustion engine assembly according to claim 22, wherein said channels are separated from one another by channel walls having an average thickness of between 18 and 32 micrometers.

26. The combustion engine assembly according to claim 22, wherein said number of channels over said cross-section of said at least one honeycomb body is at least 600 cpsi, and said channels are separated from one another by channel walls having an average thickness of at most 32 micrometers.

27. The combustion engine assembly according to claim 22, wherein said catalytic converter is a three-way catalytic converter converting at least 98% of hydrocarbons and nitrous oxides in the exhaust gases during normal operation.

28. The combustion engine assembly according to claim 22, wherein said catalytic converter is a three-way catalytic

converter converting 99% of hydrocarbons and nitrous oxides in the exhaust gases during normal operation.

29. The combustion engine assembly according to claim 22, wherein said number of channels of said at least one honeycomb body is more than 750 cpsi, and said volume is less than 0.5 times said displacement.

30. The combustion engine assembly according to claim 22, wherein said channels are separated from one another by channel walls having an average thickness of less than 32 micrometers.

31. The combustion engine assembly according to claim 22, wherein said channels are separated from one another by channel walls having an average thickness of approximately 25 micrometers.

32. The combustion engine assembly according to claim 1, wherein said catalytic converter is a three-way catalytic converter converting at least 98% of hydrocarbons and nitrous oxides in the exhaust gases during normal operation.

33. The combustion engine assembly according to claim 1, wherein said catalytic converter is a three-way catalytic converter converting 99% of hydrocarbons and nitrous oxides in

the exhaust gases during normal operation.

34. The combustion engine assembly according to claim 1, wherein said number of channels of said at least one honeycomb body is more than 750 cpsi, and said volume is less than 0.5 times said displacement.

35. The combustion engine assembly according to claim 1, wherein said channels are separated from one another by channel walls having an average thickness of less than 32 micrometers.

36. The combustion engine assembly according to claim 1, wherein said channels are separated from one another by channel walls having an average thickness of approximately 25 micrometers.

37. The combustion engine assembly according to claim 32, wherein said number of channels of said at least one honeycomb body is more than 750 cpsi, and said volume is less than 0.5 times said displacement.

38. The combustion engine assembly according to claim 37, wherein said channels are separated from one another by channel walls having an average thickness of less than 32 micrometers.

39. The combustion engine assembly according to claim 37,



wherein said channels are separated from one another by channel walls having an average thickness of approximately 25 micrometers.